DOCUMENT RESUME

ED 104 941 95 TM 004 399

AUTHOR Kester, Ralph J.; Howard, John, Jr.
TITLE Evaluating the Process of Educational Change: A Model and Its Application.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE [Apr 75]
NOTE 34p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, D.C., March 30-April 3, 1975). Not available in hard copy due to marginal legibility of original document

EDRS PRICE MF-$0.76 HC Not Available from EDRS..PLUS POSTAGE
DESCRIPTORS Adoption (Ideas); *Change Strategies; Changing Attitudes; Data Analysis; Data Collection; Diffusion; *Educational Change; *Educational Innovation; Evaluation; *Evaluation Methods; Interaction; *Models; Occupational Guidance; *Organizational Theories; Secondary Education

ABSTRACT

The study objective was to identify factors shown to have influenced the acceptance of a career guidance system in six high schools. The theoretical framework was based on characteristics of the advocates, consumers, system, and interrelationships among those three. Records, interviews, field notes, and surveys were used to collect data. The findings indicated that the adoption process occured in three distinct phases, and variables in each of the domains were attributable to inhibiting or facilitating adoption. The study illustrates the effect that factors other than the innovation, such as the context and strategies used by advocates, have on adoption. (Author)

ED104941

BEST COPY AVAILABLE

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

EVALUATING THE PROCESS OF EDUCATIONAL CHANGE: A MODEL AND ITS APPLICATION

Ralph J. Kester

John Howard, Jr.

A paper presented at the annual meeting of the American Educational Research Association, held in Washington, D.C. on March 30 through April 3, 1975

TM 004 399 BEST COPY AVAILABLE

The information in this paper was in part collected pursuant to a contract with the National Institute of Education, U.S. Department of Health, Education and Welfare. Points of view or opinions do not necessarily represent official position or policy of either The Center for Vocational Education or the National Institute of Education.

Preface

This paper is based in part on information which resulted from a study conducted at The Center for Vocational Education under the sponsorship of the National Institute of Education. An attempt has been made to provide enough information concerning the nature of the research effort so as to put the statement of factors affecting the adoption of innovations into perspective.

It is important to point out that the factors presented in the latter part of this paper should be viewed as hypotheses and not conclusive statements based on relational or causal type research.

Elements which had a major influence on the study were the somewhat unique nature of the innovation in question and the fact that it was still under development while being adopted by the sites referred to in this investigation.

The intent of the paper is primarily to present a conceptual framework and methodology which should be useful to practitioners, researchers and others in their attempts to understand the process of adoption. In addition, the paper presents some general factors which resulted from an application of this framework and methodology in an actual adoption setting.

Contents

Preface i

Contents ii

Introduction 1

A Conceptual Framework of the Adoption Process 3

Basic Elements of the Conceptual Framework 4

Stages of Adoption 6

Potentially Influential Factors 9

Application of the Model 16

Data Collection Procedures 17

Data Analysis Procedures 18

Results of the Application 20

Description of the System Type Innovation 21

Description of the Sites 21

Generalized Factors 22

Across the Adoption Process 23

During Initiation 24

During Implementation 26

Leading to Incorporation 28

References 29

Introduction

One aspect of the educational scene which will likely continue is the proposal of change. Proposing changes in the content, method and organization of schooling is the expressed purpose of scores of individuals and organizations at the local, state, and federal levels. Although it is a rather simple task to identify the proposed changes and in most cases at least some of the individuals who are advocating those changes, it is not at all obvious how those proposed changes are initially received nor accepted by the intended recipients.

Billions of dollars have been spent in the past decade by federal, state and local educational agencies for the purpose of generating "new" * content and methods for the process of schooling. However, it seems that this "new" knowledge in the form of ideas, content, or processes is affecting only a small portion of the educational community. Even those changes which gain considerable prominence are accepted by some individuals and/or organizations and not by others. Numerous reasons can be suggested for this state of affairs. These reasons, however, soon lead to the awareness that very little is known about how educational organizations and educational professionals actually decide to try innovations or deal with them in some other manner.

If little is known about how educational professionals, individually and collectively, (e.g., groups or organizations) actually view and deal with proposed changes, it seems it would be difficult to answer any questions

---

*The term "new" is referred to in a perceptual rather than absolute sense. In other words, if the change being proposed is perceived by the recipients as different from what is now being done or considered, then it is "new."

about what effect a given change had on them or why some changes are not as well received as others. Furthermore, if questions concerning how and with what effect certain changes are instituted into the educational scene cannot be answered, it seems somewhat futile to continue developing "new" ideas. On the other hand, if the creation of "new" ideas stops, then the educational process would very shortly be unable to respond to the dramatically changing social and physical world in which it exists. What is needed then, is more and better information concerning the process and effect of change in education.

The process and result of collecting such information for decision making is generally referred to as evaluation. Evaluation in some traditional frames of reference is the process of collecting information about only the end result of some given activity in order to determine the level of success attained by the participants. In the last decade or so there has been a growing consensus that evaluation, if it is to provide useful information, must be more comprehensive than assessing final results. In the case of evaluating change, a more comprehensive evaluation schema would ideally include the observation of the total process of change from the inception of the idea to the final use or rejection of the idea by individuals or organizations other than those who conceived the change.

The intent of this paper is to present a conceptual framework and methodology which should be useful to practitioners, researchers and others in their attempts to more comprehensively understand (evaluate) the process through which "new" ideas are dealt with in educational settings. This process of dealing with "new" ideas will be referred to as the process of "adoption of innovations." Adoption is the term which will be used to generically describe the way in which the intended recipients of an innovation

deal with it. Innovation will be the generic term referring to all such things as ideas, procedures, or other products which are being proposed to a set of individuals (including one) and that idea, procedure, or product is not a part of them (affectively, cognitively, or behaviorally). In addition to the presentation of the conceptual framework and evaluation methodology, some general factors about the process of adoption of innovations in educational organizations are stated. These generalizations resulted from an application of the framework and methodology in an actual adoption setting.

A Conceptual Framework* of the Adoption Process

In an effort to explain a particular event or set of events, the inquirer generally has certain conceptual ideas concerning the substance or structure of that event. Sometimes these conceptual ideas are called assumptions, sometimes hypotheses, at other times theory, and in the case of this study, a conceptual framework. The phrase "conceptual framework" was used in this study because very little substantial theory exists concerning exactly what goes on during the acceptance of new ideas (innovations) in educational organizations. However, some categories of influencing variables have emerged from research. These conceptual categories were designed, therefore, to guide but not restrict, in any severe sense, the inclusion of other possible variables which might be identified in the process of observing any given change attempt. A conceptual framework is defined as a set of mutually consistent dimensions

---

*Much of the initial conceptualization for this aspect of the report was drawn from a previous research effort at The Center for Vocational Education (Hull, et al., 1973).

interrelated by logic, based in fact, and ordered at systematic levels of generality. A conceptual framework differs from theory in that it lacks substantial generalized statements of relationships among the categorical dimensions.

The following comments focus on three major sections of the conceptual framework. First the basic structural elements are defined. Next an explanation of the stages or phases of adoption puts the process into the dimension of time. Finally the focus is on those factors which may affect the process as the basic elements interact during the stages of adoption.

Basic Elements of the Conceptual Framework

The underlying structure of the adoption process framework is grounded in basic social change theories which define change in terms of cognitive, affective, or behavioral terms (Kiesler, et al., 1969). Another underpending theoretical assumption of the adoption process framework is that social change and, more specifically educational change, necessitates the interaction of individuals. The fact that individuals are part of a group or organization or some other social arrangement only suggests other factors which should be taken into account when attempting to assess the response to a change attempt.

The structural aspects of the conceptual framework define the basic elements which are assumed to be antecedent to any given change attempt. Three such structural elements are identified.

One element is the innovation (i.e., the idea or program which is not now being used by at least some individuals in a given school setting). Innovations could be such things as an idea, a program, a set of materials, or some kind of equipment, or a rather extensive system of procedures

and materials. The second antecedent element is an individual or group which is suggesting or supporting the use of the innovation. These are labeled advocates. Advocates can be administrators, teachers, or some other person(s) who has been designated or has accepted the responsibility of promoting the use of the innovation. The third antecedent element in the framework is the individuals or groups who are intended to implement the innovation. These individuals are referred to as consumers. The consumers of an innovation are generally defined in terms of the intended users of the innovation, but as an innovation is introduced in a given setting, others not previously identified as intended users may become, at least in part, potential or actual users.

It can be noted that this triadic structure of advocate, consumer, and innovation is consistent with basic theoretical discussions of learning theory, consistency theories of attitude change (e.g., Heider, 1944) and extensively used in communications theories such as Schramm, (1955) and Berlo, (1960). The reason for this is undoubtedly obvious in that the process of educational change can easily be considered a subset of all human interaction and thus involves the basic interaction processes such as learning, attitude change, and communication.

Once the innovation, advocates and consumers are identified, the process of change can be explained further by referring to an interaction phase. This phase is characterized by the interaction which occurs between advocates and consumers as they communicate about the innovation. The advocates formulate and initiate strategies (sequence of actions) based on their perceptions of the innovation and of the consumer. The consumers respond or initiate counter strategies based on their perceptions of the

innovation and the advocates. This is not to say that consumers are always in a reactive role. At times, the consumer may initiate contact with an advocate. For example, a consumer may perceive the need for some type of change and seek out the assistance of some individual or agency to resolve the problem. This example reveals some of the complexity and thus difficulty for any inquirers in their attempt to audit and account for important influences in a change attempt.

Change, under this framework, is defined as the perceived impact, or effects on the consumer, innovation, advocate or any relationship between the three. Theoretically, change can occur at any point in time after the three antecedent conditions begin to interact. The perceptions of impact or effect can be from the viewpoint of the advocate, the consumer, or some other observer.

To get a full picture of what is transpiring in a change attempt, one must take a position as to what the intended change was perceived to be, and yet observe unintended consequences which may occur. This implies that observations will be made over a period of time and that information will be consciously and systematically compiled about all aspects of the particular change attempt in question.

Stages of Adoption

The assumption that change involves an interaction between advocates and consumers implies a continuum of time and also suggests the possibility of stages of adoption. Rogers and Shoemaker (1971) and others have suggested and given support to the observation that individuals (consumers) go through various stages as they respond to innovations. Rogers labels these as: (1) awareness, (2) interest, (3) mental evaluation, (4) trial,

and (5) adoption or incorporation. The number, sequence, or labeling of the stages for individual adoption are not firmly based. Zaltman, et al., (1973) summarizes seven conceptual ideas concerning individual stages of innovation adoption. The important point is that the use of conceptual stages of adoption is helpful in discussing the interaction and time aspects of the adoption process. This construct of stages of individual adoption is an integral part of the conceptual framework of innovation adoption. The construct is further defined by the proposal that these stages are generally sequentially but independent. That is, individuals generally follow from one stage to the next in order, but the successful completion of one stage by a consumer does not imply continuance to the next. The adoption continuum can be aborted at any stage through numerous influences.

Giacquinta (1973), expanded the concept of individual adoption to group or organization adoption. Zaltman, et al., (1973) summarizes five other conceptual models of organizational stages of innovation adoption. Giacquinta suggested that organizations as collective sets of individuals go through three identifiable stages in the adoption process. These he labeled: (1) initiation, (2) implementation, and (3) incorporation.

Initiation is the stage in which members of the organization become aware, interested, and mentally evaluate the innovation; this leads to a decision to try.

From the point of a decision to try the innovation, the members of the organization are in implementation. All members may not arrive at the decision to try, but due to the dynamics of the organization, the decision is made. Furthermore, the level of acceptance will vary considerably at the point of the decision to try the innovation. This point further

illustrates the complexity of analyzing the influential factors of the adoption process. If successful, implementation results in the appropriate members of the organization behaving according to the expectations of the innovation.

The final and most substantial stage of adoption according to the conceptual framework is incorporation. Incorporation with respect to an innovation, occurs to the extent that various aspects of the innovation become routine elements of organizational behavior. Due to the short time frame of many studies, it may be difficult to determine whether or not the specified aspects of an innovation have become routine in the particular school setting being studied. Therefore, the concept of incorporation can be modified to what can be referred to as "potential for continued use." Essentially "potential for continued use" is an estimate of the probability that an innovation will be incorporated. These stages of initiation, implementation and incorporation also are conceptualized as independent stages in the adoption process. The successful completion of one does not imply continuance to the next.

Giacquinta's three stages provided the basic conceptual structure for viewing the adoption stages of a school. However, Charters and Pellegrin (1972) make an important point about such stages. In their study of the adoption of differentiated staff they noted that the school systems went through basically two stages. A preparation-formation phase in which the school decided to try the innovation and an implementation phase during which organizational and behavioral changes were incrementally made to accommodate the expectations of the innovation. They further pointed out that the researcher should be cautioned that these conceptual stages were probably only relevant to imported innovation. That if an innovation

grew out of the inventive spirit of a school such conceptual stages would be confounded by a formative stage in which extensive negotiation between various groups would take place. This point is well to remember.

Potentially Influential Factors

During the transactions between advocate and consumer numerous factors have potential influence. Three distinct sets of influences are explained. One set is the situational or circumstantial. Included in this set are various political influences, financial decisions, and natural events which occur during or as a result of the intervention of an innovation or those associated with it. Some examples of these are state laws, amount of federal money available, geographical location of the school, the priorities which have been established, political precedence, or events such as semester tests or bad weather.* Also included in this set are those formal and informal organizational arrangements which are an integral part of existing operational procedure of any organization. These organizational arrangements involve such things as the extent to which decisions are made by one individual or set of individuals, how much supervision of personnel occurs, the extent to which standard procedures are used, and how extensive the communication is between various sections of the organization. Corwin (1973) and Hage and Aiken (1970) provide further illustration of the nature and affect of organizational characteristics on the innovation adoption process.

Besides the situational or circumstantial factors the advocates and consumers themselves have a major potential influence on the acceptance process.

*For a summary of further examples, refer to Brown, 1968; Brickell, 1969; Havelock, 1971; Rogers and Shoemaker, 1971; Hull et al., 1973; House, 1974; and Rothman, 1974.

One aspect of the advocates and consumers which may have an affect is their actions and reactions during the process of adoption. Theoretically, these actions and reactions can be described in terms of three types: (1) informative, (2) persuasive, and (3) coercive. These categorical types are relatively consistent with those used in other conceptual discussions about actions of and responses to change (Zaltman, et al., 1972; Hornstein, et al., 1971; and Bennis, et al., 1969). In practice, few actions or reactions by either advocates or consumers are likely to be one type. They are likely to be combinations of the three types in differing amounts. Informative tactics are those designed to present or request information concerning facts about the innovation or change attempt. Persuasive tactics are those messages which use the manipulation of values of either the consumer or advocate to accomplish certain goals. Some examples of persuasive tactics would be the appeal to codes of ethics or the appeal to friendship. Coercive tactics are those using the application of power to force the compliance of other individuals to certain goals. Some coercive tactics are the use of an authority position, a withdrawal of services such as a strike or boycott, and the offering of financial incentives. From the advocate's viewpoint, these tactics are employed to maximize the chance for successful adoption. From the consumer's viewpoint these tactics are used to insure the acceptance of change which is meaningful and/or advantageous. In some cases, for the consumer, this would mean resisting the acceptance of certain parts or all of a particular innovation.

Kelman (1958) conceptualized three basic responses to change which have an interesting parallel to the three types of actions just explained. Kelman claims that change on the part of an individual may be a result of (1) compliance, (2) identification, or (3) internalization. Coercive action

would tend to result more in compliant behavior and when the situation was perceived as less coercive the changed behavior would subside. Persuasive actions would tend to result in identification in that the subject would value the association with the innovation. Informative tactics, if successful in obtaining adoption, would generally result in internalization due to the fact that the consumer would have to have a need which was highly consistent with the information presented about the innovation. If not, it would be necessary to persuade, or coerce the consumer into adoption.

Another aspect of the advocates and consumers which may have an affect on the adoption of an innovation is who the advocates and consumers are. This would include their role positions, their personalities, their history of relationships with those with whom they are dealing, their experience with other innovations, and other such personal attributes which identify who they are.

All of this suggests that the process of interaction as previously suggested is quite similar to that of a learning process. The parallel is that the advocate is cast in the role of a teacher and the consumer the learner. Although there are several learning theory viewpoints, the one which is proposed as most parallel to the model of innovation adoption process is the "trace theory" viewpoint. "Trace theory" is a part of the more general Gestalt theoretical approaches to learning theory.

Analytically, trace theory is grounded on three principles that may have relevance to individual acceptance of innovations. The essential features of trace theory are summarized by Hilgard and Bower (1966, p. 237), (1) a trace is assumed which persists from a prior experience, so that it represents the past in the present; (2) a present process is also posited

one which can select, reactivate, or in some manner, communicate with the trace; and (3) there is a resulting new process of recall or recognition.

Under the first condition, it can be assumed that an individual's past experience with educational change will affect the manner in which he reacts to the present change attempt. In addition, to the extent he recognizes the present condition as being similar or analogous to a past encounter will affect whether he will become involved. For example, if he had negative experiences with an innovation perceived as being similar to the present change then the chances of him participating are lessened. Conversely, positive experiences with educational innovations increase the probability that the individual will participate in the new change attempt. The analogy is not unlike that which occurs during any learning situation.

The individual's ability to select and recall salient features of former events has relevance to the second principle of trace theory identified by Hilgard. As a learner the consumer recalls and highlights those events in his past (positive or negative) that can be used to assess the current educational practice. It is no wonder that educators are fearful of change, especially if they have had: (1) numerous negative experiences in the past and (2) lack identifiable traces which can bridge the gap between the positive, past experiences and the present. Educational change, if successful, is not a result of a set of trial and error situations or events, but it is disclosed through insight and scrupulous examination. The role of the change advocate then is to diagnose, probe and determine the prior experiences of the ultimate consumer, such that change does not remain at the theoretical level.

Finally, if the consumer is able to form the connection between his

past behavior and present condition, there is a resulting recognition which determines how he will act. If he recognizes the innovation as being appropriate, then he acts favorably towards its implementation. Such overt behavior on the part of the consumer, as openly voicing support and/or helping with its implementation can be observed. On the other hand, if he perceives the innovation as being in conflict with his professional duties or value system, then he acts unfavorably towards its implementation. Rejection, and/or overt denunciations of the proposed change are the types of behavior that can be observed when the consumer negatively views the innovation.

In summary, the relevance of "trace theory" to the adoption of innovation is that it views the individual in a state of transition from past through the present to the future. "Trace theory" further hypothesizes that the learner (consumer in the change process) relies on past experiences to interpret present experiences and plan for the future. To the extent that present experiences are seen as similar or analogous with past experiences this tends to facilitate learning. However, the association is neither direct or assured due to past experiences. According to the precepts of Gestalt theory, the individual still must filter present experiences through the field of present circumstances. The "trace theory" element of the general Gestalt position, however, does add credence to "insight" as an aspect of the learning process. As traces of experience become a part of an individual the organization and arrangement of these lead to a variety of combinations of potential insights which may be derived from a given learning situation. In the process of change, various traces in an individual may be related to the particular response of the consumer or advocate as they interact.

Although this discussion has been admittedly brief, space does not permit an extensive analysis of the relationship of the change process to learning theory. The point is that previous conceptual frameworks and models of the process of change have not explained, nor even drawn the obvious relationships to basic learning theories. The position of this conceptual model is that the Gestalt theoretical position is most appropriate and that in particular, the theoretical constructions of "trace theory" lend themselves to explaining many of the intricacies of the interaction between advocates and consumers.

In addition to the situational or circumstantial and advocate consumer interaction aspects of the process of change, the third set of influential elements of any change attempt is the characteristics of the innovation itself and the reactions of the advocates and consumers to those characteristics. Innovations consist of two subsets of characteristics: (1) types and (2) perceived attributes (Zaltman, et al., 1973; Hull, et al., 1973). The "types" of innovations, are three: an idea in the form of a written or verbal comment; an instructional package, instructional tool, or management product, which can be independently used by one practitioner (e.g., text books, reading or mathematics labs); or an instructional or management system, product or program which requires the interdependency of several individuals in order for it to function properly (e.g., program planning and budget system, team teaching, and individual instruction).

The "perceived attributes" of the innovation can be observed and discussed in terms of six categories (Kester and Hull, 1973).* Each

---

*Other categorizations do exist: Zaltman, et al., 1973; Rogers and Shoemaker, 1971; and Hull and Wells, 1972.

category is similar to a dimension of the innovation as it is viewed by the consumers. Hall (1974) discusses attributes similar to these as concerns on the part of the consumers. Brickell (1969) discusses the effect of innovation characteristics similar to some of the categories mentioned here. Brickell (1971) has more recently reemphasized the critical aspect of innovation characteristics in any adoption schema.

The first category is the degree to which the content and purpose of the change are seen as relevant to the needs of the consumers (e.g., teachers, and administrators) and of the students they serve. The second category is the extent to which the innovation requires additional resources for the purpose of implementation. This refers to the people, time, and money, beyond that which is presently available or able to be reallocated. The degree to which the innovation contains values which are perceived as contrary to those values of the consumer population is the third category. The fourth category is the "consumer report rating." This refers to a number of aspects such as: Is the innovation perceived as tested? Do the consumers feel as though the developers guarantee success? Is the innovation seen as cost effective? A fifth category is "credibility." "Credibility" is assumed to be a function of the consumer's respect for the organization or individual who produced the change, and of the organization or individual proposing the change. The sixth and final category of "perceived attributes" concerns the extent to which the innovation requires organizational changes such as the reallocation of time, personnel, and money.

Given the characteristics of the innovation and the fact that it is being advocated, the advocates' and consumers' reactions to it are most important. They will have reactions which will generally fall into one

of three categories. They will have a certain degree of involvement with the innovation, attitudes toward it, and a certain level of expectation for it. Involvement with the innovation could consist of actual participation or simply being exposed to various aspects of the innovation.

In summary, the conceptual framework views the process of change in three basic phases. First there is an antecedent phase which necessitates the coming together of an advocate with an innovation designed for some set of consumers. Once these conditions are in existence, the process of change enters an interactive phase in which advocates and consumers communicate about the content of the innovation. The third phase, the consequent or impact phase really overlaps the interactive phase and consists of the effects or consequences of the interactive phase.

During the interactive phase the framework suggests that individual consumers and organizations of consumers go through stages of adoption which are relatively independent. As the advocates and consumers are interacting and proceeding through the various stages of the adoption process, the framework further suggests that a variety of influences are brought to bear on that relationship. Some of these influences are seen as part of the contextual or situational circumstances; others are viewed as being associated with aspects of the innovation itself; still others are seen as a result of the actual interaction between the advocates and the consumers. Using this framework helps focus attention on a rather comprehensive set of potential influences on the adoption of innovations in education.

Application of the Model

Once the conceptual framework was established, procedures were set up to collect observational data on an actual adoption process. A systems

type innovation being developed at The Center for Vocational Education (CVE) and trial tested in six high schools over a period of three years was selected for observation. The basic purpose of this research purpose was to describe an adoption process using the conceptual framework as an observational guide post. The outcome was seen as an exploratory set of hypotheses about the innovation adoption process which would be consistent with a conceptual viewpoint and grounded in an empirical base of data.

The systems type innovation developed by CVE was selected for two reasons: First the research staff had excellent access to a comprehensive set of data sources including development files and development and field site staff. Secondly, a systems type innovation being adopted in high school settings, due to its complexity, allowed for the potential of maximizing the number of factors which might be observed to have affected the adoption process.

Data Collection Procedures

Numerous data collection means and sources were used. The instrumentation included: (1) a survey designed to assess the degree of involvement, attitudes toward and expectations for the guidance system of the faculty and staffs of the high schools; (2) a quantifiable profile of the "perceived attributes" of the system as an innovation (refer to the conceptual framework for a definition of the six categories of "perceived attributes"); (3) a quantifiable profile of the perceived organizational characteristics of the schools such as degree of centralized decision making, extent of supervision, and level of standardization; (4) collection of selected facts concerning various demographics of each site community, school district, and school which were used in the description of the sites;

(5) a set of charts designed to depict the basic formal staff line organization structure of each of the sites from the state to the district to the local school; (6) a record of incidents or events at the sites having a potential affect on the adoption of OG; (7) a chart designed to illustrate the amount of activity with respect to the guidance system; and (8) a set of three indices developed to catalogue the degree of adoption in terms of the phases of initiation, implementation, and incorporation or in this case, the potential for continued use. This latter set of three indices provided what could be referred to as the dependent measures for the study.

Using the instrumentation and an extensive variety of sources, data was collected over a three-year period. This encompassed the time from the first school's involvement with the prototype development (in the 1971-1972 school year) to the end of the 1973-1974 school year.

Data Analysis Procedures

The total data set was in various combinations of qualitative and quantitative forms. Therefore, both statistical and content types of analysis were required. The statistical analyses were primarily descriptive except for some correlational analysis of the data gathered through the use of the paper and pencil attitudinal survey.

Figure 1 provides a diagram of the schema used in analysis of the data in this case study. Both the statistical and content data were used to write brief histories of each of the six sites. These were written according to the three stages of organizational adoption, (i.e., initiation, implementation, and incorporation or potential for continued use). The discussions were further organized by the three areas of potential effect

TAGES OF ADOPTION	Potential Effects	By Site						Across Sites ABCDEF	Dependent Variables
		A	B	C	D	E	F		
Initiation	IC								The signing of the contract and voting of the faculty and staff, the faculty and staff's attitudes toward the orientation, and the strength of administrative support.
	AC								
	S								
Implementation	IC								The quantity of work such as outputs, time, and assistance needed to complete the tasks. The quality of work such as tasks, outputs, and attitudes of the participants.
	AC								
	S								
Potential for Continued Use	IC								The degree of official and unofficial administrative support. The amount of resources set aside for the system and the amount and type of incorporation being suggested.
	AC								
	S								
Timed Series Survey and Interrelationships With Individual Demographics									
									Summary of Results and Generalizations

Figure 1

A Diagram of the Data Analysis Schema

Key:

IC - Innovation Characteristics
AC - Advocate Consumer Interaction
S - Situational or Circumstantial Characteristics

outlined in the conceptual framework (i.e., innovation characteristics, advocate and consumer interaction, and situational or circumstantial influences.

Each stage was then summarized across sites by stage and area of potential influence. These summaries (results) were in turn further condensed by formulating generalizations across and among sites, stages, and areas of potential influence. The last section of this paper presents a listing of these generalizations.

Results of the Application

As stated, the purpose of the research was to provide a descriptive analysis of the process and events which occurred as the career guidance system was being tried in the six sites. Also, it was pointed out in the preface that this paper represents an attempt to share the basic purpose, methodology, and general factors which have resulted from an initial analysis of the data. No attempt is made in this paper to present specific findings according to the sites. Such information will be available at a later date (Kester and Howard, forthcoming).

Therefore, the next section presents a set of general statements which should be viewed as <u>hypotheses</u>. However, these hypotheses were developed not out of simply some theoretical framework and exercise of pondering, but out of an extensive effort to record and analyze an actual process of adoption. Taking into account the various general limitations of an exploratory case study, fact that the system was being developed while it was being tried, and the fact that these generalized factors have varying degrees of support, the practitioner, researcher and others can use these insights along with the conceptual framework to reassess their understanding of the process of adoption. Before presenting the general critical factors,

a description of the system studied and a brief overview of the six sites should help put the study into greater perspective.

Description of the System Type Innovation

This brief technical description of the system was extracted from brochures, pamphlets, newsletters and journal articles. Technically, the career guidance system is explained in terms of six modules of activities. Module one describes the process of organizing school personnel to accomplish prescribed developmental tasks. Module two consists of an identification of student career guidance needs; determination of existing school resources, translation of student needs into program goals and tentatively assigning priorities to program goals. The purpose of module three is to verify program goals. The purpose of module four is to derive behavioral objectives for student and adult actors. Module five is designed for school personnel to establish methods for achieving student objectives. Finally, module six explains a process for evaluating the program goals.

Description of the Sites

Six sites were involved in the development and trial use of the career guidance system. These sites were selected so as to represent urban, suburban and rural settings. Also the sites represented various geographical locations and a mixture of ethnic groups in the schools and communities. Two of the sites were primarily inner city and had a predominantly black population. Two of the sites were considered to be more suburban in nature. One of these suburban sites had a population of approximately 50% white and 50% black. The other suburban site had almost 100% white population. The final two sites were more rural in geographic location. One had a significant Mexican-American population along with a major population of whites and

a small proportion of blacks. The other rural district had mainly a white population with some blacks.

In addition to the variations listed in the previous paragraph, the six sites also represented differing viewpoints in terms of school organization and functioning. One school was conducting a modular schedule. Another school was learning how to operate in a new open-space type facility. Some of the schools had various additions to a standard high school curriculum while others maintained a rather standard curriculum.

Although this brief discussion does not give much detailed information it should suggest that the six sites were reasonable examples of many of the high schools that exist in the United States. This implies that the comments and factors uncovered in this study may have a broader application than if all the sites were quite similar.

Generalized Factors

Using the conceptual framework to assist in organizing the observations of this particular adoption effort led to the derivation of generalizations concerning factors which were critical to that process. These generalizations are consistent with the conceptual framework and the data gathered. However, it must be emphasized that the generalizations come from a comparatively small sample of cases. Therefore, the reader is cautioned to view the generalizations more as hypotheses to be further confirmed rather than strongly supported conclusions. Some generalizations are observable facts about the process of adopting innovations. These <u>facts</u> are critical elements in the adoption process and will have an effect but whether the effect is facilitative or inhibiting seemingly depends on other factors. Other generalizations are stated in such a manner as to suggest <u>facilitating factors</u>. A third type of

generalization suggests inhibiting factors. The converse of a facilitating factor will generally result in an inhibiting factor and vice-versa.

The factors are presented in four categories. The factors which affect the total adoption process will be presented first. The next three sets of factors will be those which affect the initiation, implementation and potential for continued use (incorporation) phases, respectively.

Across the Adoption Process

Characteristics of the Innovation

Inhibitor — H_1 Innovations will be perceived as a threat to those individuals in the school who are most closely related to the content of the innovation if they perceive that it involves a major change in their role responsibilities.

Facilitator — H_2 Innovations perceived as consistent with existing societal concerns or demands will overcome more barriers to the adoption process than those which are perceived as less consistent.

Interaction Among Advocates and Consumers

Fact — H_3 Schools changed through the adoption of innovations will go through phases similar to initiation, implementation, and incorporation.

Fact — H_4 Individuals in a school in which an innovation is being adopted will go through various stages of acceptance such as awareness, interest, mental evaluation, involvement, advocacy, and changed behaviors consistent with the expectations of the innovation.

Fact — H_5 Attributes of an innovation, the interaction between advocates and consumers, and circumstantial events or situational conditions each have an influence during the process of adoption.

Fact — H_6 Actions in the form of tactics on the part of advocates and consumers are identifiable throughout the adoption process.

Fact — H_7 Increased involvement by the consumers concerning the decision to initiate, implement, or incorporate an innovation may not be related to successful adoption at any stage.

Circumstantial and Situational Influences

Fact — H_8 Personnel in the various levels of the organizational structure will view the purposes and potential uses of an innovation differently throughout the adoption process.

Fact — H_9 Individual community members and community interest groups will raise questions about an innovation to the extent that they are made aware of its existence and to the extent they do not understand the purposes of the program and/or perceive that the content, procedures, or values associated with the innovation are contrary to what they feel the school should be doing at any time during the adoption process.

Inhibitive — H_{10} General events which occur in connection with the process of schooling such as holiday breaks, semester tests, grading, bad weather, and teacher negotiations are more inhibitive than facilitative to the adoption of an innovation.

During Initiation

Characteristics of the Innovation

Fact — H_{11} During the initiation of an innovation the state or district administrators will be less concerned about the operational procedures of the innovation than the school building administrators or the teachers.

Facilitator — H_{12} The more similarity innovations have with existing identifiable needs of the state or district administration the greater the chance of a successful initiation.

Facilitator — H_{13} Innovations which systematically involve a combination of administrators, teachers, students, and/or other community persons initially will be viewed as more desirable than those which do not.

Fact — H_{14} Monetary costs of an innovation are of more overt concern to administrators than personnel costs during the initiation phase.

Interaction Among Advocates and Consumers

Facilitator — H_{15} Individuals will be more receptive to innovations that are perceived as similar or analogous to innovations in which they are now or have had positive personal or vicarious involvement.

Fact — H_{16} The decision to try an innovation during the initiation phase will be made more on the basis of some political, financial, or personal influence than a complete understanding of the innovation.

Fact — H_{17} Teachers will be less involved than state or district or school administrators in the decision to try an innovation during the initiation phase.

Fact — H_{18} The decision to try an innovation will involve persons in a manner similar to that of the existing formal organizational structure of the state, district, or local school organization.

Facilitator — H_{19} During the initiation stage of an innovation those tactics employed from a base of power or authority will be more influential in gaining a decision to try the innovation than those which are not.

Inhibitor — H_{20} During the process of initiation the ultimate users will assert that they have not had enough information on which to make a decision.

Facilitator — H_{21} The closer (social distance) advocates are perceived to the norm group(s) in the adopting organization the greater their potential for gaining a decision to try the innovation they are promoting.

Circumstantial and Situational Influences

Inhibitor — H_{22} The greater the perceptions of the members of the organization are of the failure of innovations in the past the greater the inhibiting effect on the initiation.

Facilitator — H_{23} As an innovation is introduced through the organizational structure successful initiation will be related to the extent to which both advocates and consumers perceive overt support for the innovation by those in higher organizational positions.

Fact — H_{24} The more definitive and/or prescriptive the outcomes of an innovation are the greater the number of questions which will be raised about the innovation.

H_{25} The less definitive and/or prescriptive the outcomes of an innovation are the greater the amount of misunderstanding there will be about the innovation.

During Implementation

Characteristics of the Innovation

Inhibitor H_{26} The more an innovation purports to be based on a systems approach the more it will be viewed as overly mechanistic.

Fact H_{27} The attitudinal response to an innovation during implementation will be multi-dimensional.

Fact H_{28} What the members of a school faculty and staff expect an innovation to do is not a unidimensional construct and will align with the major perceived underpenning goals of the innovation.

Fact H_{29} Personal costs of an innovation such as time and effort are of more overt concern than monetary costs during the implementation phase.

Facilitator H_{30} The implementation of an innovation will be facilitated to the extent the participants perceive that they have control and are able to transform the methods and procedures to prescribe their own solution to the problem as they see it.

Inhibitor H_{31} Innovations which purport to be based on a systems approach generally will be incongruent to the existing organizational patterns of the school.

Interaction Among Advocates and Consumers

Fact H_{32} Persons who take an active role in implementing an innovation do so because of one or a combination of the follcwing reasons: (1) they see involvement in the innovation as a means to gain a better position or responsibility; (2) they see that participation with the innovation will increase their status in terms of such things as leadership or endearment; (3) they are afraid that if they do not become involved they might lose their job or be sanctioned by the administration or their peers; (4) they participate because a friend has asked them; (5) they perceive that the innovation is consistent with their professional or personal concerns; (6) they feel that it is their organizational duty to be involved with innovations which are supported by the administration, or (7) they just like the idea of being involved in things with other people.

Inhibitor H_{33} A decrease in communication with units of the administration within and beyond the school, such as building principal, district or state personnel, will increase the doubt on the part of the faculty and staff of the school of general support for the innovation.

H_{34} To the extent involvement in an innovation results in a conflict of role responsibilities the faculty or staff member will chose those role responsibilities established prior to and existing concurrent with the introduction and implementation of the innovation over those of the innovation.

Inhibitor

H_{35} To the extent that faculty or staff members perceive there is overt administrative support for an innovation those individuals will choose the role responsibility of the innovation over their role responsibilities prior and concurrent with the adoption process of the innovation.

Facilitator

H_{36} Implementations of innovations established under the dictates of a contract will result in the completion of specified tasks to a greater degree than those not established under such conditions.

Facilitator

H_{37} During implementation advocates will have less resistance from consumers to the extent that they are perceived as sharing some of the general responsibilities which fall on all members of the faculty and staff.

Facilitator

H_{38} One-way informative tactics result in more misperceptions about the innovation than two-way informative tactics during the implementation process.

Inhibitor

H_{39} Persuasive tactics or direct sanctions will be more effective in gaining and maintaining involvement, and accomplishing the prescribed tasks of an innovation during the implementation phase than informative tactics.

Facilitator

H_{40} As the change suggested by the innovation becomes more eminent in the eyes of the consumers the following phenomena can be increasingly observed:

1. consumers begin to alter their behavior (e.g., teaching methods) to conform or prepare themselves to what they perceive the innovation outcome will be.
2. advocates will tend to attribute this conforming or planning to the existence and success of the innovation.
3. non-advocates (resistors) will tend to disavow any relationship between this conforming or planning to the innovation.

Fact

Circumstantial and Situational Influences

Facilitator H_{41} To the extent that generally accepted bureaucratic procedures are adhered to and protocol is respected the perception of the legitimacy of an innovation will increase.

Inhibitor H_{42} To the extent that expected outcomes are not achieved there will be greater concerns expressed about the viability and effectiveness of the innovation.

Fact H_{43} Faculty and staff personnel who are members of ethnic minority groups will involve themselves, be more favorable, and have greater expectations for innovations which promote the concepts of accountability, than ethnically white faculty and staff members.

Leading to Incorporation (Potential for Continued Use)

Characteristics of the Innovation

Facilitator H_{44} Continued use of an innovation will be more likely if the innovation can be partially used or adapted to particular situations in the function of the school.

Interaction Among Advocates and Consumers

Facilitator H_{45} Continued use of an innovation will occur to the extent that the school personnel perceive there is official (formal and overt) and unofficial (informal and tacit or overt) support for continuance.

Circumstantial and Situational Influence

Facilitator H_{46} Continued use of an innovation will occur more often in situations where the implementation has resulted in some worthwhile results (outcomes perceived as worthwhile by the school personnel) and the primary advocates during implementation also play a central role during incorporation.

Facilitator H_{47} Continued use of an innovation will occur to the degree there are resources (e.g., time, money, and personnel) specifically set aside for continuance in the school.

REFERENCES

Bennis, Warren G.; Benne, Kenneth D.; and Chin, Robert (eds). The Planning of Change. New York: Holt, Rinehart and Winston, Inc., 1969, (second edition).

Berlo, David K. The Process of Communication. New York: Holt, Rinehart and Winston, Inc., 1960.

Brickell, Henry M. "Appraising the Effects of Innovations in Local Schools." The Sixty-Eighth Yearbook of the National Society for the Study of Education, 1969

Brickell, Henry M. "Alternative Diffusion Stategies." Paper prepared for The Center for Vocational Education, The Ohio State University, 1971.

Brown, Lawrence A. Diffusion Process and Location: A Conceptual Framework and Bibliography. Philadelphia Regional Science Research Institute, 1968.

Campbell, R. E.; Suzuki, Warren N.; and Gabria, Michael J. Jr. "A Procedural Model for Upgrading Career Guidance," American Vocational Journal, January 1972.

Charters, W. W. Jr. and Pellegrin, Roland J. "Barriers to the Innovation Process: Four Case Studies of Differentiated Staffing." Educational Administration Quarterly, Vol. 9, No. 1, 1972.

Corwin, Ronald G. Reform and Organizational Survival. New York: John Wiley and Sons, 1973.

Giacquinta, Joseph B. "The Process of Organizational Change in Schools," in F. N. Kerlinger (ed.) Review of Research in Education, Itasca, Illinois: F. E. Peacock Publishers, Inc., 1973.

Hage, Jerald and Aiken, Michael. Social Change in Complex Organizations. New York: Random House, 1970.

Hall, Gene E. "The Concerns Based Adoption Model: A Developmental Conceptualization of the Adoption Process Within Educational Institutions." A paper delivered at the annual meeting of the American Educational Research Association, Chicago, Illinois, April, 1974.

Havelock, Ronald G. Planning for Innovation. Ann Arbor: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan, 1971.

Heider, F. "Social Perception and Phenomenal Causality." Psychological Review. 51, pp. 358-374, 1944.

Hilgard, Ernest R. and Bower, Gordon H. Theories of Learning. New York: Appleton-Century Crafts, 1966.

Hornstein, Harvey A.; Bunker, Barbara B.; Burke, W. Warner; Gindes, Marion; Lewicki, Roy J. Social Intervention: A Behavioral Science Approach. New York: The Free Press, 1971.

House, Ernest. The Politics of Educational Innovation. Berkely: McCutchen Publishing Corp., 1974.

Hull, William L. and Wells, Randall L. The Classification and Evaluation of Innovations for Vocational and Technical Education. Columbus, Ohio: The Center for Vocational Education, The Ohio State University, 1972.

Hull, William L.; Kester, Ralph J.; and Martin, William B. A Conceptual Framework for the Diffusion of Innovations in Vocational and Technical Education. Columbus, Ohio: The Center for Vocational Education, The Ohio State University, 1973.

Kelman, H. C. "Compliance, Identification and Internalization: Three Processes of Attitude Change. Journal of Conflict Resolution, Vol. 2, pp. 51-60, 1958.

Kester, Ralph J. and Hull, William L. The Identification of Empirical Dimensions of the Diffusion Process: An Interim Report. Columbus, Ohio: The Center for Vocational Education, The Ohio State University, 1973.

Kester, Ralph J. and Howard, John Jr. The Adoption of Systems Innovations In Educational Organizations: A Case Study of Operation Guidance. Columbus, Ohio: The Center for Vocational Education, The Ohio State University, (forthcoming).

Kiesler, Charles A.; Collins, Barry E.; and Miller, Norman. Attitude Change. New York: John Wiley and Sons, Inc., 1969.

Leithwood, K. A.; Russell, H. H.; Robinson, F. G.; and Clipsham, J. S. "A Revised Model of Planned School Change," The Ontario Institute for Studies in Education. A paper presented at the annual meeting of the American Educational Research Association in Chicago, Illinois on April 15-19, 1974.

Rogers, Everett M. and Shoemaker, F. Floyd. "Communications of Innovations-A Cross Cultural Approach," 2nd Edition. New York: The Free Press, 1971.

Rothman, Jack. Planning and Organizing for Social Change. New York: Columbia University Press, 1974.

Schramm, Wilbur. "How Communication Works in The Process and Effects of Mass Communication. Urbana: University of Illinois Press, 1955, pp. 4-8.

Zaltman, Gerald; Duncan, Robert; and Holbek, Jonny. Innovation and Organizations. New York: John Wiley and Sons, 1973.